

CLAIMS

We claim:

1. An isolated polynucleotide which encodes a mammalian Zsig9 polypeptide wherein said polynucleotide encodes a polypeptide selected from the group SEQ ID NOs:2-6, 17, 20 19 and 21 or a polypeptide which is at least 90% identical to the polypeptides of said group.

2. An isolated polynucleotide which encodes a peptide or polypeptide having at least 15 amino acid residues comprised of an epitope-bearing portion of a polypeptide of SEQ ID NOs: 2-6, 17, 20 19 and 21 or a polypeptide which is at least 90% identical to said polypeptides.

3. The polynucleotide of claim 2 wherein the peptide or polypeptide is fused to a carrier polypeptide or other carrier molecule.

4. An expression vector comprising the following operably linked elements:

- a transcription promoter;
- a DNA segment which encodes a Zsig9 polypeptide or a peptide or polypeptide which contains an epitope-bearing region of a Zsig9 polypeptide; and
- a transcription terminator.

5. An expression vector comprising the following operably linked elements:

- (a) a transcription promoter;
- (b) a DNA segment encoding a chimeric polypeptide, wherein said chimeric polypeptide consists essentially of a first portion and a second portion joined by a peptide bond, said first portion being comprised of a mammalian polypeptide, said polypeptide being the amino acid sequences of SEQ ID NOs:

2-6, 17, 20 19 and 21 and said second portion being a second polypeptide or protein.

(c) a transcription terminator.

6. An isolated Zsig9 polypeptide selected from the group of amino acid sequences consisting of SEQ ID NOs: 22-6, 17, 20 19 and 21 or a polypeptide which is at least 90% identical to said polypeptides.

7. An isolated peptide or polypeptide having at least 15 amino acid residues comprised of an epitope-bearing portion of a polypeptide of SEQ ID NOs: 2-6, 17, 20 19 and 21.

8. An antibody, antibody fragment or single-chain antibody that specifically binds to a mammalian polypeptide, said polypeptide being defined by the amino acid sequences of SEQ ID NOs: 2-6, 17, 20 19 and 21 or a polypeptide which is at least 90% identical to said amino acid sequences.

9. An antibody of claim 8 wherein said antibody is either monoclonal or polyclonal.

10. The antibody, antibody fragment or single-chain antibody of claim 9 wherein said antibody, antibody fragment or single-chain antibody is humanized.

11. A method for producing an antibody which binds to a peptide or polypeptide defined by SEQ ID NOs: 2-6, 17, 20 19 and 21 or to a peptide or polypeptide which is at least 90% identical to said peptide or polypeptide comprising bringing into contact a peptide or polypeptide defined by SEQ ID NOs: 2-6, 17, 20 19 and 21 or to a peptide or polypeptide which is at least 90% identical to said peptide or polypeptide with a cell capable of producing antibodies or the cell is brought into contact with a nucleic acid which encodes said peptide or

polypeptide, wherein said cell produces antibodies to said peptide or polypeptide; and isolating said antibody.

12. The antibody of claim 11 wherein said antibody is either a polyclonal or monoclonal antibody.

13. The method of claim 11 wherein an animal is inoculated with the peptide or polypeptide or nucleic acid under conditions wherein the animal produces antibodies to said peptide; and isolating said antibodies.

14. The method of claim 13 wherein the antibodies are polyclonal or monoclonal.

15. An anti-idiotypic antibody, anti-idiotypic antibody fragment or anti-idiotypic single-chain antibody which binds to an antibody, an antibody fragment or single-chain antibody of peptide or polypeptide defined by SEQ ID NOs: 2-6, 17, 20 19 and 21 or to a peptide or polypeptide which is at least 90% identical to said peptide or polypeptide.